

REMARKS

Claims 1 and 3-20 are pending in the subject application upon entry of the amendments and new claims. Claims 1, 8, and 12-15 have been amended to better describe certain aspects of the invention. Claim 2 has been canceled without prejudice or disclaimer and to expedite allowance of the application. Claims 16-20 have been added to further describe certain aspects of the invention. Favorable reconsideration in light of the amendments, the new claims, and the remarks which follow is respectfully requested.

Art Rejection of Claims 1-5, 8-11, and 13-15

Claims 1-5, 8-11, and 13-15 stand rejected under 35 U.S.C. §102(b) over Takase (US 2002/0090876). Takase relates to "a battery separator consisting essentially of a nonwoven fabric having a substantially unilayered structure." See Abstract of Takase.

In order for anticipation to exist, each and every feature as set forth in the claim must be disclosed in a single cited art document. *Trintec Industries, Inc., v. Top-U.S.A. Corp.*, 295 F.3d 1292, 63 U.S.P.Q.2D 1597 (Fed. Cir. 2002). "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

The claimed nonwoven fabric sheet can have a high porosity, a relatively fine pore size, and a relatively uniform pore size distribution. Such superior properties of the nonwoven fabric sheet can be achieved by press-molding a resin molded article in a nonwoven fabric form under controlled conditions, as described on page 15, line 4-page 10, line 10 of the subject specification. To this end, claim 1 recites "*a nonwoven fabric sheet characterized by having a porosity in the range of 0.3 to 0.7, a maximum pore size in the range of 0.5 µm to 5.0 µm, and a maximum pore size (µm)/average pore size (µm) ratio is 1.30 or lower.*"

The Office Action contends on page 2 that Takase anticipates the claims because Takase discloses a nonwoven fabric battery separator having a maximum pore size of 1.9 times or less than a mean flow pore size [0071] with the maximum pore size being 30 microns or less [0070].

It is submitted that Takase fails to disclose each and every feature of claim 1 because Takase only discloses upper limits of the ratio of maximum pore size/mean

flow pore size and the maximum pore size. Takase fails to disclose lower limits of the ratio of maximum pore size/mean flow pore size and the maximum pore size.

Consequently, Takase fails to explicitly disclose the claimed ranges of maximum pore size and the maximum pore size (μm)/average pore size (μm) ratio.

Moreover, Takase fails to inherently disclose the claimed range of maximum pore size. It is well established principle that inherency must be a necessary result and not merely a possible result. *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) and MPEP §2112 IV. "In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." *Id.*

Takase teaches that a diameter of high-modulus fiber of a nonwoven fabric is 12 to 35 μm and such high-modulus fiber is contained in the nonwoven fabric at an amount of 5 mass % or more. See paragraphs [0020] and [0021] of Takase. One skilled in the art would readily understand that a nonwoven fabric containing such an amount of fiber having such a large diameter would have a much larger maximum pore size than the claimed range of 0.5 μm to 5.0 μm . In fact, the least maximum pore size disclosed by Takase is 20.5 μm . See Examples 1 and 3 in Table 1 of Takase.

The claimed maximum pore size in the range of 0.5 μm to 5.0 μm is critically important to the claimed nonwoven fabric. In this connection, the Examiner's attention is respectfully directed to maximum pore sizes in Table 1 of the subject specification. The maximum pore sizes of Examples 1-5 are in the range of 0.5 μm to 5.0 μm . Contrary to Examples 1-5, maximum pore sizes of Comparative Examples 1-4 are more than 5 μm .

Furthermore, Takase fails to inherently disclose the claimed range of maximum pore size (μm)/average pore size (μm) ratio. As discussed above, the least maximum pore size disclosed by Takase is 20.5 μm . When the maximum pore size is so large, a maximum pore size (μm)/average pore size (μm) ratio cannot be 1.30 or lower. This is apparent from the cited art documents on page 6 of the Office Action, Shigematsu (US 7,405,172) and Aikawa (US 6,284,680). The ratio of maximum pore size/average pore size disclosed by Shigematsu is at least 1.52 (Example 6, where the maximum pore size is 34.1 μm and the average pore size is 22.4 μm). The ratio of maximum pore size/average pore size disclosed by Aikawa is at least 1.5 (Examples 3 and 7-9). In

fact, the least maximum pore size (μm)/average pore size (μm) ratio disclosed by Takase is 1.7. See Examples 1 and 3 in Table 1 of Takase.

In addition, Takase is not an enabling cited art document since Takase does not contain an enabling disclosure to make a nonwoven fabric sheet having a porosity in the range of 0.3 to 0.7, a maximum pore size in the range of 0.5 μm to 5.0 μm , and a maximum pore size (μm)/average pore size (μm) ratio of 1.30 or lower. In this connection, MPEP §2121.02 states that without a disclosure enabling one skilled in the art to make a product, a cited art document is not applicable as prior art with respect to the product as follows.

Where a process for making the compound is not developed until after the date of invention, the mere naming of a compound in a reference, without more, cannot constitute a description of the compound. *In re Hoeksema*, 399 F.2d 269, 158 USPQ 596 (CCPA 1968).

When a prior art reference merely discloses the structure of the claimed compound, evidence showing that attempts to prepare that compound were unsuccessful before the date of invention will be adequate to show inoperability. *In re Wiggins*, 488 F.2d 538, 179 USPQ 421 (CCPA 1971). See MPEP §2121.02.

As discussed above, Takase only discloses upper limits of the maximum pore size and the ratio of maximum pore size/mean flow pore size. The least maximum pore size disclosed by Takase is 20.5 μm . The least maximum pore size (μm)/average pore size (μm) ratio disclosed by Takase is 1.7. Takase does not disclose how to make a nonwoven fabric sheet having a porosity in the range of 0.3 to 0.7, a maximum pore size in the range of 0.5 μm to 5.0 μm , and a maximum pore size (μm)/average pore size (μm) ratio of 1.30 or lower. Since Takase fails to contain an enabling disclosure to make a nonwoven fabric sheet having the claimed ranges, Takase does not qualify as cited art against the claims.

In view of the foregoing, Takase fails to disclose each and every feature as set forth in claim 1. Consequently, Takase cannot anticipate claims 1, 3-5, 8-11, and 13-15. Accordingly, withdrawal of the rejection is respectfully requested.

Art Rejection of Claim 12

Claim 12 stands rejected under 35 U.S.C. §102(b) or under 35 U.S.C. § 103(a) over Takase.

As discussed in the previous section, Takase fails to disclose, teach, or suggest all features of claim 1. In particular, Takase fails to disclose, teach, or suggest a nonwoven fabric sheet having a porosity in the range of 0.3 to 0.7, a maximum pore size in the range of 0.5 μm to 5.0 μm , and a maximum pore size (μm)/average pore size (μm) ratio of 1.30 or lower. As a result, Takase cannot anticipate claim 12 and make claim 12 obvious. Accordingly, withdrawal of the rejection is respectfully requested.

Double Patenting

Claims 1-5 and 8-15 stand rejected on the ground of nonstatutory obviousness type double patenting over claims 1 and 2 of U.S. Patent No. 7,183,020 to Sudou in view of Takase.

The Office Action concedes on page 5 that Sudou fails to teach or suggest a maximum pore size of 0.5 to 5.0 microns, a maximum pore size (μm)/average pore size (μm) ratio of 1.30 or lower, and a strength retention material laminated thereon. The Office Action, however, contends on page 5 that Takase teaches a nonwoven fabric battery separator having a maximum pore size of 1.9 times or less than a mean flow pore size [0071] with the maximum pore size of 30 microns or less [0070]. From this, the Office Action concludes that it would have been obvious to arrive at the claimed invention by combining the teachings of Sudou and Takase.

As discussed in the previous section, Takase fails to explicitly and inherently teach or suggest the claimed ranges of maximum pore size and the maximum pore size (μm)/average pore size (μm) ratio. Moreover, Takase is not an enabling cited art document since Takase does not contain an enabling disclosure to make a nonwoven fabric sheet having a porosity in the range of 0.3 to 0.7, and a maximum pore size in the range of 0.5 μm to 5.0 μm , a maximum pore size (μm)/average pore size (μm) ratio of 1.30 or lower. As a result, the proposed combination of Sudou and Takase fails to teach or suggest all the features of the claims. Consequently, Sudou and Takase cannot make the claims obvious. Accordingly, withdrawal of the rejection is respectfully requested.

New Claims 16-20

Claim 16 recites “*a strength retention material comprises a spun-bonded nonwoven fabric, a melt-blown nonwoven fabric, a dry-laid nonwoven fabric, a woven fabric, paper or a film.*” Claims 17-19 recite similar features.

Claim 20 recites “*a laminate comprising two or more layers, the laminate comprising one or more nonwoven fabric sheets according to Claim 1 and one strength retention material.*”

Takase teaches a nonwoven fabric having a **unilayered structure**. See paragraphs [0012] and [0166] and claim 1 of Takase. Contrary to Takase, the laminate of claims 16-19 contains a strength retention material of a spun-bonded nonwoven fabric, a melt-blown nonwoven fabric, a dry-laid nonwoven fabric, a woven fabric, paper or a film. Further, contrary to Takase, the laminate of claim 20 contains two or more layers. Therefore, Takase teaches away from claims 16-20.

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Should the Examiner believe a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact applicants' undersigned representative at the telephone number below.

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